80/294/RVC

RESULT OF VOTING ON CDV

Project number: IEC 61162-400 Ed.1	Reference number of the CDV **80/260/CDV**
IEC/TC or SC TC 80	Date of circulation 2001-03-23

Title of the TC or SC concerned
Maritime navigation and radiocommunication equipment and systems

Title of the committee draft:
Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 400: Multiple talkers and multiple listeners - Ship systems interconnection - Introduction and general principles

The above-mentioned document was circulated to National Committees with a request that voting take place for approval for circulation as an FDIS (or publication as a Technical Specification or Report)

Voting results

see printout attached

Comments received – see annex[1]

In the case that the approval criteria for acceptance have been met,

a ☒ The committee draft for vote (CDV) will be registered as an FDIS by (date) 2001-04

DECISION OF THE CHAIRMAN (in cooperation with the secretariat), in the case that the approval criteria for acceptance have not been met or in the case of a draft Technical Specification or Report

b ☐ The committee draft for vote (CDV) will be published as a Technical Specification or Report by (date) ……

c ☐ A revised committee draft will be circulated as a committee draft for vote (CDV) by (date) ……

d ☐ A revised committee draft will be circulated for comment by (date) ……

e ☐ The committee draft and comments will be discussed at the next meeting (date) ……

NOTE — In the case of a proposal *b*, *c* or *d* made by the chairman, P-members objecting to such a proposal shall inform the Central Office with copy to the secretary in writing within 2 months of the circulation of this compilation (see ISO/IEC Directives, Part 1, 2.6.5).

Name or signature of the Secretary	Name or signature of the Chairman
M A Rambaut	Dr A Norris

ANNEX A

Result of Voting on CDV - Document 80/260/CDV

Project: IEC 61162-400 Ed.1
Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 400: Introduction and general principles, multiple talker and multiple listeners - Ship systems interconnection
Circulation Date: 2000-04-07
Closing Date: 2000-09-15

Country	Status	Sent	Received	Vote	Comments
Belgium	P	2000-09-13	2000-09-13	Y	-
Canada	P	2000-09-15	2000-09-15	A	-
China	P	2000-09-15	2000-09-15	Y	-
Denmark	P	2000-09-11	2000-09-11	N	Y
Finland	P	2000-09-12	2000-09-12	A	-
France	P	2000-09-07	2000-09-07	Y	-
Germany	P	2000-09-13	2000-09-13	Y	Y
Greece	O	2000-09-13	2000-09-13	A	-
Ireland	O	2000-09-14	2000-09-14	Y	-
Italy	P	2000-09-15	2000-09-15	Y	-
Japan	P	2000-09-08	2000-09-08	Y	-
Netherlands	P	2000-09-14	2000-09-14	Y	-
Norway	P	2000-09-08	2000-09-08	Y	Y
Portugal	-	2000-09-12	2000-09-12	A	-
Russian Fed.	P	2000-07-10	2000-07-10	Y	-
Spain	O	2000-07-06	2000-07-06	Y	-
Sweden	P	2000-09-04	2000-09-04	Y	-
U.S.A.	P	2000-09-06	2000-09-06	Y	-
United Kingdom	P	2000-08-16	2000-08-16	Y	-

		Approval Criteria	Result
P-members voting: 13			
P-members in favour: 12 = 92 %		**>= 67%**	**APPROVED**
Total votes cast: 15	**Total against: 1 = 7 %**	**<= 25%**	**APPROVED**
Final Decision:			**APPROVED**

NOTES
1 Vote: Does the National Committee agree to the circulation of the draft as a FDIS:
Y = In favour; N = Against; A = Abstention.
2 Only votes received before the closing date are counted in determining the decision.
Late Votes: (0).
3 Abstentions are not taken into account when totalizing the votes.
4 P-members not voting: Egypt; Romania; (2).

Annex

Date	Document
2001-02-26	80/260/CDV

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
DK			General	This document is a general introduction and general principles for IEC 61162-401, 61162-410 + 61162-420. At page 3 and 4 the background and basic idea for 61162 is given in the two sections named: “”General” and “Rationale for Specific Marine Standards”. Section “General” Cite: “ *It is the intention of these standards to facilitate safe inter-operability and support the functionality required by modern systems and equipment, thereby satisfying the needs of ship owners, operators, manufacturers, yards and regulatory bodies*.” This comment gives the impression that the standard is going to be used in regulated areas of the ship.	The scope must be corrected to match the scope of the “top-level” document.	The standard is intended for regulated areas of the ship, otherwise it would not be a matter for IEC TC80/WG6. The scope has been amended

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
DK			General	Section “Rationale ...” (page 4) Cite: The *IEC standard 61162 provides four specifications to support the services required for marine applications: decision support, data acquisition, shipboard and safety management, etc., within the framework and constraints imposed by the various regulatory bodies*.” This clearly supports the impression that the intended use is for regulated and even safety and/or safety related areas on the ship. Section “Rationale...” (page 4) 1.Cite: third section “*The adaptation of ...*”. This section gives the impression that common standards like profibus, p-net,... and many other standardised communication protocols can not be used on board a ship because the adaptation will introduce systematic errors etc. This is not the truth, and can only be interpreted as a very weak argument for not using already existing standards. This is an ordinary old-fashioned way to do it. Every fieldbus/communication standard that is used for control purpose has equivalent functionality (like IEC 61158). Therefore, IEC 61162 seems to be a step backward.	If the functionality of IEC 61162 is taken into consideration (document 61162-401 page 55) the standard has 8(12) data request types: 2.Function 3.Read 4.Write 5.Non-acknowledge write 6.subscribe 1.initial ordinary 2.initial broadcast 3.initial individual 7.Subscribe data transmission 1.ordinary 2.broadcast 3.individual 8.Transaction cancel Anonymous broadcast subscribe	The 61162 series is for regulated areas. The formulation in the introduction is correct, but we do not agree that it should be interpreted as said here. However, using e.g., Profibus where a high capacity protocol (e.g., for VDR radar images) are required may cause problems. This is what the rationale actually says.

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DK				Section “Rationale...” Section four and five gives the impression that IEC 61162 will give large benefits to the yards, owner etc. because of standardisation. This is in principle (or should be) truth for every standard and not especially for IEC 61162. But there are some negative economic aspects because suppliers that are going to integrate IEC 61162 shall have equipment certified with yet another new protocol. Example 1: In “410” page 20 section 4.6: *“ Graceful degradation facility”* *The system level network shall be designed with a capacity for graceful degradation in order to retain maximum performance from the remaining available resources in case of failure. Redundancy should be used for safety critical parts of the system in order to provide services and performance even after a single failure.* This is not the way to **define** graceful degradation and this “definition” is of no use. This section is the only one about graceful degradation in the four documents. It is of no use and there are no bindings to Quality of Service functionality’s network management or equivalent.	Graceful degradation in the four documents must be consistent. The implication of Quality of Service functionality’s in the individual documents must be described. The functional profile and the posibility to exchange T-profile will have an impact on quality. That must be added.	Clause 4.6 specifies general requirements to all T-profiles. Later clauses define one possible T-profile based on double ethernet with graceful degradation.

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DK				In the introductory note on ”400” page 1 it is stated that: *IEC 61162-4 Series specifies a communication protocol for use in integrated systems. It defines a ship wide and system level integration mechanism that complements solutions provided by other parts of the IEC 61162 series. It is also expected that the IEC 61162-4 Series will be used for data acquisition by higher level, non realtime and non-critical administrative workstation and personal computers.* Looking deeper into this statement it is obvious that this protocol is not intended for use in safety critical, real-time or other areas where the behaviour, safety, robustness, reliability etc. is in focus. On the other hand, it also states that it is intended for data acquisition. This means that it can have a certain impact on the behaviour of the crucial parts of the ship automation. This is in total contradiction to the four proposed standards: 1.IEC 61162-1 4800 bits/sec one way serial communication 2.IEC 61162-2 38400 bits/sec one way serial communication 3.IEC 61162-3 250 Kbits/sec CAN (2a or 2b ?) based network 4.IEC 61162-4 min 10 Mbit/sec Ethernet based network 61162-1,2 and 3 is to be operated on low to mid fieldbus level where 61162-4 is to be used at “all” levels.		This has been commented on before: Use where highly critical hard real-time requirements are important, should normally use another standard, e.g., -3. It is believed that this is clear from the context. -4 is mainly intended for use on high level. Use on other levels is not ruled out, but is not a focal point. Note that the scope has been clarified

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DK		a	General	This evaluation will use selected examples of the documents to clarify the overall impression of the standards, which is as follows:	The scope must be consistant. It seems that a change in scope has taken place during the editing process (some of the detailed chapters have the scope of satefy critical functions)	Below comments are to the individual points, but the conclusion is that no change will be made.
DK		b		The document stated that IEC 61162 is not for certified, safety critical use, but is only for data collection and ship wide integration. This gives no meaning when analysing the four sub standards IEC 61162-1,2,3 and 4. Low speed and CAN bus-based fieldbusses are to be used at plant level, otherwise it has no meaning.		The scope section says that the protocol is to be used for integration at system level, and hence in safety related functions. However, it further states that the actual safety of a given implementation is dependent on a large number of factors of which the protocol is only one. It is ultimately up to relevant authorities to approve a specific ship or class of ships. IEC 61162-3 is intended to be such a sensor level fieldbus and –4 is meant to complement this, not supercede it. It is believed that this is clear in the current CDV. No change.
DK		c		1. The use of a communication protocol at plant level demands proper predictable behaviour and that the equipment is to be certified with this standard as communication interface. This is in contradiction with IEC 61162 which states it is intended to be used at plant level where regulations for behaviour exist (LR, DNV,...).		Response times (hard or soft) and other issues are only relevant when put into a defined context. It is agreed that use at sensor level with the current T-profile (Ethernet) probably is inappropriate for fast system, but that the provision for other T-profiles may make it relevant, hence the referenced comment. It is believed that this is clear and no change will be made.

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DK		d		2. The IEC 61162 standard documents do not give a proper strict definition of the standard. It is not a profile document (as it should be) but a description of a proposed implementation.		The intention of this standard was to provide a description of the protocol so that it can be implemented and this is in line with most other IEC standards of this type and in particular with other standard in the 61162 series.
DK		e		3. It is not possible to use the documents to design and implement the protocol because the lack of proper strict and consistent description. 4. It is impossible to verify whether a given implementation conforms to the standard or not, based on the IEC 61162 documents.		The standard includes sufficient detail to allow independent verification
DK		f		5. Authorities like Lloyds and Veritas normally validate integrated ship control systems. This implies very formal definitions for response times, redundant considerations and other safety related topics. In short a communication standard for use in integrated ship control systems must take this in serious consideration and offer the necessary information for legislation.		Not intended for hard realtime systems. Field tests will evaluate response times etc. This is strictly an implementation issue and not for the protocol itself.

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DK		General		The document is NOT a profile document. It is in some way a loose description of an intended implementation of the 61162 protocol. It is nearly impossible to use the document to design an implementation of the standard, and later on analyse and verify the behaviour of an implementation/design. A standard description must be very strict and shall follow a definition paradigm (like the old JTC 1 TR 10000). Instead the document gives a rough overview of an internal design overview for a proposed implementation of IEC 61162. This way of describing IEC 61162 will cause a lot of problems because no profile documentation exists and therefore it is impossible to verify whether a given implementation conforms to the standard or not.		See previous comments
DE 1		General page 6 Table	Editorial		APPLICABILITY OF THE DIFFERENT STANDARDS - table: Correct the sign “ ”	Corrected.
DE 2		General page 7 last paragraph	Editorial		Change “heading control device” to “heading control system”	Corrected.
NO		Introduction Various	Editorial	Some misleading facts about IEC 61162-1/2/3 structure (e.g., 82 characters incl. CR/LF, at least 10 listners, 223 bytes message for –3). Should be revisited. Diagram should use heavy lines to indicate bus. SDME should be explained in diagram.	Go through introduction and correct mistakes.	Done, errors corrected. SDME explained.
NO	2	7	Editorial	Reference to 61162-3 seems to be wrong.	Correct	No change - reference correct.
NO	3		Editorial	Definition of stream should be included	Include	Included in definitions section.

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DK	4			Chapter 4: ” Overview and General Principles” Chapter 4 gives a very weak explanation of the IEC 61662-4 concept. In section 4.2 a lot of options that IEC 61162 can, but not shall support is summarised. It gives the impression that it will be very difficult to investigate if a given implementation conforms to IEC 61162. This is a very crucial point. In 4.3.3 conformance is addressed on a very weak level. Again it cannot be used because the total lack of strict definition etc. In 4.8 and 4.9 the very important issue of conformance class description of systems is addressed. Figure 7 in section 4.9 gives the impression of a total system including various tools for design etc. But it is very unclear what is part of the standard like “*specification of interface description language*”.	The profile concept will only work if the (common A-profile on top of different T-files) concept of Conformances classes is well defined. A much more stringent definition of conformance classes must be added.	Clause 4 is intended as a general overview so that the rest of the standard can more easily be understood. It is not meant to be a test plan. "Conformance class" as used here applies to the basic protocol and not the function blocks. It is agreed that this issue should be clarified. See 4.3.3 of FDIS
NO	4.2	1.	Editorial	Remove note as it does not convey important information	Remove	Removed.
NO	4.4	1	Editorial	There are no previous versions of this standard. Reference should probably be to MiTS – include as informative annex?	Change	Included reference to MiTS and PISCES in definitions section. 4.4 removed and appropriate changes made in 4.3.

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DK	5			Chapter 5: "A-profile Functionality The IEC 61162 has the A-profile as the core. The intention is that T-profiles can be interchanged according to demands and architecture. This is not reflected in the A-profile at all. Subjects like timing, transport, quality, and safety obtained in various ways are not visible on top of the A-profile. They are addressed like in section 5.2.7 "Real-time properties" - "*The system provides three priority levels: urgent, normal and low....*" - "*Dependant on the T-profile in use, this means that is possible to allocate a certain part of the total bandwidth to higher priority messages*" - "*NOTE- The different T-profiles must be expected to support priorities in different manners*" The real-time properties are not reflected at the A-profile interface at all. And as the text says different T-profiles can have different strategies for priority systems if they have any at all. So in general real-time behaviour is not addressed in IEC 61162.	The real-time properties must be reflected at the A-profile.	Heading of 5.2.7 amended to Message Priorities. Any future development in the T profile would be reflected in a review of the A profile

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DK	6			Chapter 6 " T-profile functionality". Demands for the T-profile (transport profile) are very weak. In section 6.2 eight typical parameters are summarised. b) Priority levels can be a part of the T-profile or not. This implies that the A-profile services are very dependent on the T-profile. If no priority on T-level there is no priority on A-level. c) Support for real-time is not a demand. d) Stream services (bulk transfer) may be available or not. e) Redundancy may be available or not f) Authentication can be available in different qualities. g) Global time is present or not h) Network management" is present or not. In other words there is really no demands for the T-profile. This must naturally be reflected in the quality of the A-profile. But QoS is not part of the standard and therefore this will not be reflected in the API in a proper strict way. Section 6.3.5 elaborates a little about system management. In the standard no strict definition of system management exists and therefore it is of no use.	The description of the T-profile is not sufficient to make new T-profiles.	This is the introductory text, the actual T-profile specification lists stricter requirements (see part 410).
DK	7			Section 7 "Companion standards" The interesting part of section 7 is the idea of describing "I/O" seen from the IEC 61162. This section is insufficiently detailed for use.	The word companion standard is used (mis-used compared to ISO TC184). The level of detail is not sufficient to make new companion standards. As a minimum a guideline must be added, but also description languages should be specified (demanded).	This is the introductory text and not a detailed specification (refer to part 420).

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DK	8			Section 8 “System Configuration Services” As section 6 this is only an advisory section. There is no demands or protocol definitions, but only a lot of weak “*There may be specified ...*” etc. Therefore, this section is of no use.	The 61162-401 should be turned into a real profile document, and not a mixture of a communication standard and a “profile document”.	This is the introduction. Configuration services will be detailed in the test and documentation requirements and in the T-profile and companion standard documents (410 and 420).